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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/079,864	05/15/1998	JASON P. RHODE	2836-P190US	8805

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JAMES J. MURPHY  
THOMPSON AND KNIGHT LLP  
1700 PACIFIC AVENUE  
SUITE 3300  
DALLAS, TX 75201

EXAMINER

GRIER, LAURA A

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 02/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/079,864

Applicant(s)

RHODE ET AL.

Examiner

Laura A Grier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 31-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 36-40 is/are allowed.
- 6) ☒ Claim(s) 31-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 May 1998 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### *Claim Objections*

1. Claim 31 is objected to because of the following informalities: line 11, "right" should be replaced with -- left --. Appropriate correction is required.

### *Drawings*

2. In order to avoid abandonment, the drawing informalities noted in the paper mailed on with paper no. 5 according the Notice of Draftsperson's Patent Drawing Review, must now be corrected. Correction can only be effected in the manner set forth in the above noted paper.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 31, 33, and 34-35 are rejected under 35 U.S.C. 102(e) as being anticipated by Petroff, U. S. Patent No. 5970153.

Regarding claim 31, Petroff discloses a stereo spatial enhancement system. Petroff's disclosure comprises dual-transfer function/summing circuit modules (DT) which is

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implemented by a single-op amp (A4) – (col. 3, lines 60-65), for receiving the left and right channel input signals, and the DT modules, each also receives an input from the differential amplifier (DE), which outputs a common mode rejection signal, which reads on a 1<sup>st</sup> and 2<sup>nd</sup> amplifier, and the differential amplifier (DE), which receives a left channel input and a right channel input to create the common mode rejection signal, reads on a 3<sup>rd</sup> amplifier (col. 4, lines 60-67, col. 5, lines 1-4, and lines 30-46, and col. 6, lines 60-65 and figure 6); and Petroff inherently disclose a 1<sup>st</sup> and 2<sup>nd</sup> speaker driven between the left and right output signals and common mode output signal as evident by the fact disclosure of the two stereo loudspeakers (col. 3, lines 51-52) and the modified L' and R' modified stereo output signals.

Regarding claim 34, Petroff discloses a stereo spatial enhancement system. Petroff's disclosure comprises a L and R input, which indicates a left and right channel input, a differential amplifier (DE), which receives a left channel input and a right channel input to create the common mode rejection signal, which reads on a common mode output; left and right dual-transfer function/summing circuit modules (DT) which is implemented by a single-op amp (A4), for receiving the left and right channel input signals, and the DT modules, each also receives an input from the differential amplifier (DE), which outputs a common mode rejection signal, and the DT modules output modified L' and R' signals, which reads on a left and right output channels; (col. 4, lines 60-67, col. 5, lines 1-4, and lines 30-46, and col. 6, lines 60-65 and figure 6); and Petroff inherently disclose a 1<sup>st</sup> and 2<sup>nd</sup> speaker driven between the left and right output signals and common mode output signal as evident by the fact disclosure of the two stereo loudspeakers (col. 3, lines 51-52) and the modified L' and R' modified stereo output signals.

Regarding claim 33, Petroff discloses everything claimed as applied (see claim 21).

Petroff further discloses the left and right signal referencing against a common mode voltage as evident by the output of the common mode rejection signal.

Regarding claim 35, Petroff discloses everything claimed as applied (see claim 21).

Petroff further discloses the left and right signal referencing against a common mode voltage as evident by the output of the common mode rejection signal.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Petroff in view of Gleim, U. S. Patent No. 6782107.

Regarding claim 32, Petroff discloses everything claimed as applied above (see claim 31). However, Petroff fails to disclose a 1<sup>st</sup> and 2<sup>nd</sup> digital to analog converter (herein, DACs) coupled to provide an input to the 1<sup>st</sup> and 2<sup>nd</sup> amplifiers. DACs providing input to amplifiers were well known in the art.

Regarding the DACs, Gleim discloses a pair of DACs couple to input to a pair of power amplifiers (figure 1, and col. 2, lines 27-38), which reads on a 1<sup>st</sup> and 2<sup>nd</sup> digital to analog converter coupled to provide an input to the 1<sup>st</sup> and 2<sup>nd</sup> amplifiers.

a Thus, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Petroff by implementing a 1<sup>st</sup> and 2<sup>nd</sup> DACs for the purpose converting a signal to an analog signal for adequate processing and application for the amplifier to audio reproduction via the loudspeakers.

***Allowable Subject Matter***

7. Claims 36-40 are allowed.

8. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 36, the prior of record, Petroff, discloses a differential amplifier, for creating a common mode output of the left and right signal; and a 1<sup>st</sup> and 2<sup>nd</sup> single op-amps for receiving a 1<sup>st</sup> and 2<sup>nd</sup> left and right channel input signals and the input from the differential amplifier. However, the prior art of record fails to specifically disclose or fairly suggest a 1<sup>st</sup>, 2<sup>nd</sup> differential amplifiers receiving a pair of differential inputs, and a 3<sup>rd</sup> amplifier receiving a first one of the 1<sup>st</sup> and 2<sup>nd</sup> differential pair of left and right channel inputs, therein as claimed.

***Response to Arguments***

9. Applicant's arguments with respect to the cancelled claims have been considered but are moot in view of the new ground(s) of rejection.

The applicant essential provides remarks against the previously used art in respect the cancelled claims as to not disclosing generating a left and right channel outputs from the combination of the left and right channels input signals and a common mode output signal, which are a combination of the left and right input signals. A new reference of prior art, Petroff

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has been provided which discloses the concepts of the claimed invention: generating a left and right channel outputs from the combination of the left and right channels input signals and a common mode output signal, which are a combination of the left and right input signals, therein.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura A Grier whose telephone number is (703) 306-4819. The examiner can normally be reached on Monday - Friday, 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh N Tran can be reached on (703) 305-4040. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Laura A. Grier  
February 22, 2005